Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 10/044,731	Applicant(s) PRAKASH, RAJ
	Examiner Jason Mitchell	Art Unit 2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 33-49* is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 33-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☐ All b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This action is in response to a Request for Continued Examination filed 4/21/06.

At Applicant's request claims 1-8, and 33 have been amended. And claim 49 has been

added. Claims 1-8 and 33-49 are pending in this case.

Response to Arguments

Applicant's arguments filed 4/21/06 have been considered but they are moot in

view of the new grounds of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 49 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement, and as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

The claim(s) contains subject matter which was not described in the specification in

such a way as to reasonably convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, had possession of the claimed

invention. Applicant's Fig. 8 and the accompanying text, which Applicant has indicated

relates to this claim, show a network but do not disclose the recited receiving, compiling

and transmitting steps claimed. Further, Examiner could find no other reference to these

limitations, particularly to "compiling the source program without any eliminated null

pointer condition checks".

Additionally the language recited in claim 49 ("compiling the source program without any

eliminated null pointer conditions checks") is unclear in that it could be read as requiring

a source program wherein all null pointer condition check have been removed or

wherein no null pointer condition checks have been removed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8 and 33-49 are rejected under 35 U.S.C. 103(a) as being unpatentable

over "Java Performance Tuning" by Shirazi, in view of "The Java Virtual Machine

Specification" by Lindholm et al. and further in view of "Path Profile Guided

Partial Dead Code Elimination Using Prediction" by Gupta et al.

Regarding Claim 1, 33, 41 and 44:

Shirazi discloses a method of bypassing a null pointer condition check when compiling a

source program comprised of:

"Cut dead code and unnecessary instructions, including checks for null" (pp. 75-76)

And further discloses eliminating the null pointer condition check, if the null pointer

condition check infrequently encounters null pointer conditions

> "This flow analysis can be extended to determine if other sections and code
> branches ... are actually semantically unreachable. A typical example is testing for
> null. Some null tests can be eliminated by establishing that the variable has either
> definitely been assigned to ... before the test is reached." (pg. 76)
> Here Shirazi discloses eliminating null pointer condition checks, which never
> encounter nulls. Never being a subset of infrequent, this disclosure reads on this
> aspect of the claim language.

Lindholm teaches creating an entry in a fault to target translation table for null pointer

conditions that correspond to the null pointer condition check.

> "NullPointerException: An attempt was made to use a null reference in a case where
> an object reference was required" (pg. 44); "Each entry in the exception_table array
> describes one exception handler in the code array." (pg. 122)

Gupta teaches that *"an optimizer should exploit path profiling information to reduce*

dead code along frequently executed paths even if doing so introduces some additional

instructions along infrequently executed paths" (see pg. 2, col. 2).

In a situation where the profiling taught by Gupta detects an 'infrequently executed

path', (i.e. a null pointer condition check infrequently encountering a null pointer

condition), it would have been obvious to a person of ordinary skill in the art at the time

of the invention to apply the 'dead code elimination' technique disclosed in Shirazi (i.e.

'eliminate the null pointer condition check' see Shirazi pg. 76). Further, because Null

pointer conditions could still occur (although infrequently) it would have also been

obvious to 'create an entry in a fault to target translation table' as taught by Lindholm in

order to "handle" the possibility of a "NullPointerException" (see Lindholm pg. 44)

Regarding Claim 2, 34-36, 43 and 48: The rejection of claims 1, 33, 33, 35, 41 and 44 is incorporated, further Gupta teaches gathering statistics as to the number of null pointer condition occurrences the null pointer condition check encounters (Title "Path Profile Guided Partial Dead Code elimination") and determining an acceptable rate of occurrence (pg. 3, col. 1 "During cost-benefit analysis only the frequently executed paths are accurately analyzed").

Regarding Claims 3, 45: The rejection of claim 1 is incorporated, further Lindholm teaches responsive to a fault that corresponds to a null pointer condition, using a handler program to direct the fault to a target indicated by fault to target translation data in the fault to target translation table (pg. 122 "the value of the handler_pc item indicates the start of the exception handler.").

Regarding Claim 4, 38: The rejection of claim 2, 33 is incorporated Lindholm teaches passing fault to target translation data from the fault to target translation table to a compiler using a handler program (pg. 120 "A Code attribute contains the Java virtual machine instructions and auxiliary information for a single method").

Regarding Claims 5-8, 37: The rejections of claims 1-4 and 33 are incorporated, respectively; further Shirazi discloses compiling the source program to an executable program (pp. 74-76 'Compilers can apply many "classic" optimizations'); Lindholm teaches accessing the fault to target translation table during compiling of the source program (pg. 120 "A Code attribute contains the Java virtual machine instructions and auxiliary information for a single method).

Regarding Claims 39, 40, 42, 46: the rejection of claims 38,39, 41 and 45 are

incorporated, respectively; further Lindholm teaches the table indicating instruction

identifiers for instructions that cause faults corresponding to the eliminated null pointer

condition checks and identifiers for the null pointer condition handling code units (pg.

122 "start_pc, end_pc ... handler_pc)

Regarding Claim 47: the rejection of claim 44 is incorporated; further, Shirazi discloses

instructions to generate an executable representation of the program with eliminated

null pointer condition checks (pp. 74-76 'Compilers can apply many "classic"

optimizations ... Some null tests can be eliminated').

Regarding Claim 49: The rejection of claim 1 is incorporated; further Lindholm teaches

receiving the source program over a network; and transmitting the compiled source

program over the network (pg. 91, section 3.13 "means to securely communicate

fragments of programs between hosts"). Further it is noted that compiling the source

program without any eliminated null pointer condition checks would be obvious in the

case where Gupta's profiler does not detect any null checks that infrequently encounter

nulls.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Any inquiry concerning this communication or earlier communications from the

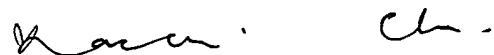examiner should be directed to Jason Mitchell whose telephone number is (571) 272-

3728. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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6/20/06

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